REMARKS

In view of the following remarks, Applicants respectfully request

reconsideration and allowance of the subject application. This amendment

5   is believed to be fully responsive to all issues raised in the Office Action

mailed April 28, 2005.

Claim Rejections

Claims 30-48 are pending in this application. In the Office Action

10   mailed April 28, 2005, claims 30-48 were rejected under 35 U.S.C. §103(a)

as being obvious over U.S. Patent No. 5,487,164 to Kirchhofer ("Kirchhofer")

in combination with multiple prior art references.

Applicant traverses these rejections. To establish a *prima facie* case

of obviousness the Action must establish that all limitations recited in the

15   claim are disclosed or suggested by the cited reference. See, MPEP

2143.03. Applicant asserts that the Action has failed to establish a *prima*

facie case of obviousness because Kirchhofer, alone or in combination with

the secondary references, fails to disclose or suggest numerous features

recited in each of independent claims 30, 36, 41 and 46, and in the

20   dependent claims.

Independent Claims 30 and 36

The rejection of independent claims 30 and 36 is improper because

Kirchhofer, alone or in combination with U.S. Patent No. 5,802,357 to Li, et

25   al ("Li") fails to disclose or suggest limitations recited in independent claims

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30 and 36. Independent claims 30 and 36 are directed to a method and

computer program product, respectively, for managing storage space on a

storage device associated with a computer system.

Each of independent claims 30 and 36 recites "sorting a plurality of

5   data files on the storage device into one or more categories based on at

least one characteristic of the data files." To support this rejection, the

Examiner cited column 3, lines 25-39 and lines 51-56, column 4, lines 2-4,

and column 9, lines 28-30. The cited text reads as follows:

10   Thus, the present practice in the art for sorting large
        data record files efficiently is to divide the file into partitions
        small enough to fit within the internal memory, load each
        partition into memory and perform an efficient internal (e.g.,
        distribution-based) sort on the loaded partition. When the
        internal sort is completed, the sorted partition is moved to an
15   output area as a single record string. The next partition is then
        loaded. The process is repeated until all partitions have been
        sorted into strings. These strings are then processed with an
        inefficient merge-based procedure to produce the final sorted
        record file.

20   The efficiency advantages of the many recent
        improvements to the internal distribution-based sorting
        procedures are alone insufficient to offset the inefficiencies
        associated with repeated input and output of record groups and
25   the relatively slow merger of the sorted record strings.

             This adaptively improves the internal distribution sorting
        efficiency responsive to data file characteristics.

30   Internal storage device 88 includes at least one block of
        contiguous storage space 94 and at least one distribution
        sorting bin 96. DASD 90 contains a first group of unsorted
        records, each having a key field (FIG. 1).

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Contrary to the Examiner's assertion, nothing in the cited text

discloses or suggests *sorting a plurality of data files on the storage device*

into one or more categories based on at least one characteristic of the data

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files, as recited in each of claims 30 and 36. A close inspection of the cited text reveals that Kirchhofer sorts the contents of a single data file.

The Action acknowledges that Kirchhofer fails to disclose or suggest reallocating a portion of the data, as recited in claims 30 and 36. The Action

5   cites U.S. Patent No. 5,802,357 to Li, et al ("Li") to compensate for this deficiency. The Action asserts that Li teaches the reallocation of a portion of the data in a category of data files, and cites column 14, lines 13-21, column 34, lines 43-45, and column 23, lines 56-58 to support the rejection. Applicants disagree. The cited text reads as follows:

10   After buffer 511 is flushed to an output file, there is no further need for buffer 511 and merge file 505. The memory space for these files can then be reallocated to the remaining buffers and merge files to increase the efficiency of the operation.

15   The final join result will be vertically fragmented for each joined table in that each input table will have a separate output group of files for the join results for that table.

20   Alternatively, multiple computers could be used to process discrete portions of the data such as the records for individual input tables.

Contrary to the Examiner's assertion, nothing in the cited text discloses or suggests *reallocating a portion of the data*, as recited in each of

25   claims 30 and 36. Thus, Li cannot compensate for the acknowledged deficiencies in Kirchhofer, and Kirchhofer, alone or in combination with Li, cannot render obvious independent claims 30 and 36.

Dependent claims 31-35 and 37-40 depend from independent claims 30-36 and are allowable at least by virtue of this dependency.

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Independent Claims 41 and 46

The rejection of independent claims 41 and 46 is improper because Kirchhofer, alone or in combination with Li and U.S. Patent No. 6,144,961 to de la Salle ("de la Salle") fails to disclose or suggest limitations recited in

5   independent claims 41 and 46. Independent claim 41 recites a limitation directed to a processor to "generate a signal when an amount of available storage capacity on the storage device falls below a threshold." And independent claims 41 and 46 recite limitations directed to a processor to "apply a reallocation operation to a category of data files when the category

10   of data files consumes an amount of storage exceeding the capacity threshold." To support this rejection, the Examiner appears to cite column 9, lines 44-49, column 3, lines 51-56 column 6, lines 55-60, and column 11, lines 4-8. The cited text reads as follows:

15   The efficiency advantages of the many recent improvements to the internal distribution-based sorting procedures are alone insufficient to offset the inefficiencies associated with repeated input and output of record groups and the relatively slow merger of the sorted record strings.

20   After the contents of bin 36 are removed to output area 42, bin 38 is then tested against predetermined threshold T and either distributed or immediately sorted and removed to output area 42, depending on the results of the comparison. In FIG. 2, the R.sub.12 entries in bin 38 are immediately sorted
25   and moved to output area 42 because they are fewer than threshold T.

           In facility 100, the bin store 104 provides storage management and space for the distribution sort bins. A
30   replacement controller 106 is coupled to bin store 104 to immediately replace data records removed to the output storage with new records from the input storage area file to be sorted, thereby ensuring that the internal memory capacity is always fully used.
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           Once internal memory space is exhausted, all bins associated with the first key digit are examined in order. The

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first seven bins have no entries and are immediately discarded.
The first active bin containing data record entries is B(1, 7). If
the predetermined threshold T is assumed to be T=2, then B(1,
7) must be further distributed because the number of entries

5   exceeds T=2.

Contrary to the Examiner's assertion, nothing in the cited text

discloses or suggests a processor to *generate a signal when an amount of*

10   *available storage capacity on the storage device falls below a threshold* and

to *apply a reallocation operation to a category of data files when the*

category of data files consumes an amount of storage exceeding the

capacity threshold, as recited in claim 41.

The Action acknowledges that Kirchhofer fails to disclose or suggest

15   reallocating a portion of the data as recited in claims 41 and 46. The Action

cites Li to compensate for these deficiencies. The Action asserts that Li

teaches the reallocation of a portion of the data in a category of data files,

and cites column 14, lines 13-21, column 34, lines 43-45, and column 23,

lines 56-58 to support the rejection. Applicants disagree. The cited text

20   reads as follows:

After buffer 511 is flushed to an output file, there is no further
need for buffer 511 and merge file 505. The memory space for
these files can then be reallocated to the remaining buffers and
merge files to increase the efficiency of the operation.

25
The final join result will be vertically fragmented for each joined
table in that each input table will have a separate output group
of files for the join results for that table.

30   Alternatively, multiple computers could be used to process
discrete portions of the data such as the records for individual
input tables.

Contrary to the Examiner's assertion, nothing in the cited text

35   discloses or suggests *reallocating a portion of the data*, as recited in each of

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claims 41 and 46. Thus, Li cannot compensate for the acknowledged deficiencies in Kirchhofer, and Kirchhofer, alone or in combination with Li and de la Salle, cannot render obvious independent claims 41 and 46.

Dependent claims 42-45 and 47-47 depend from independent claims
5   41 and 46, respectively, and are allowable at least by virtue of this dependency.

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CONCLUSION

This application is in condition for allowance. Should any issue

remain that prevents immediate allowance of the application, the Examiner is

encouraged to contact the undersigned attorney to discuss the unresolved

5   issue.

Respectfully Submitted,
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